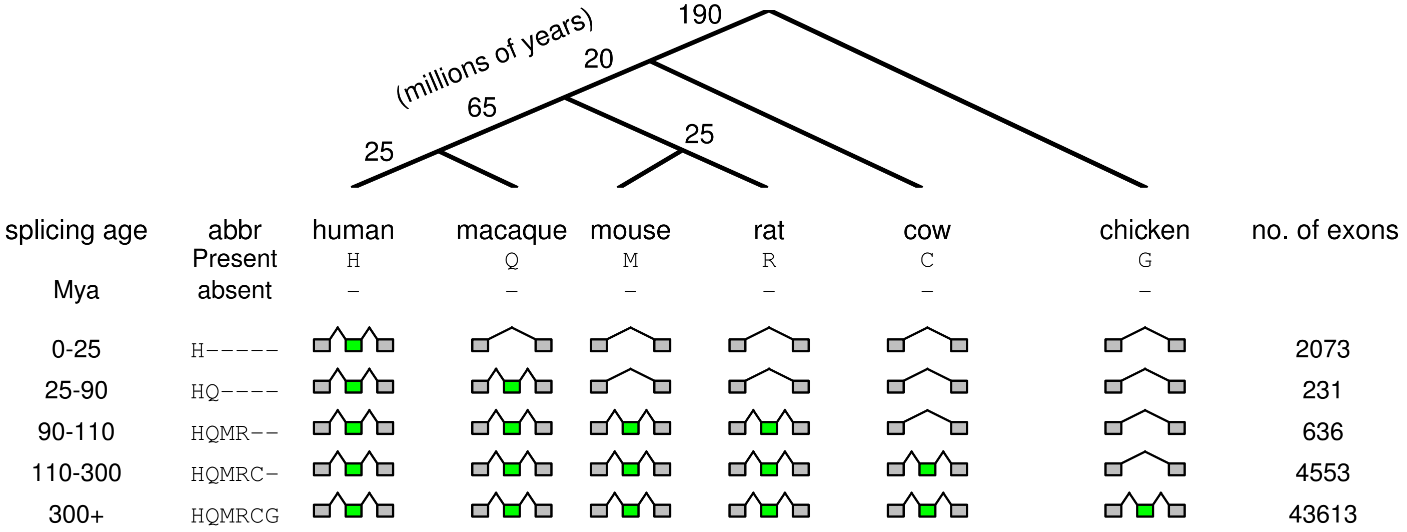
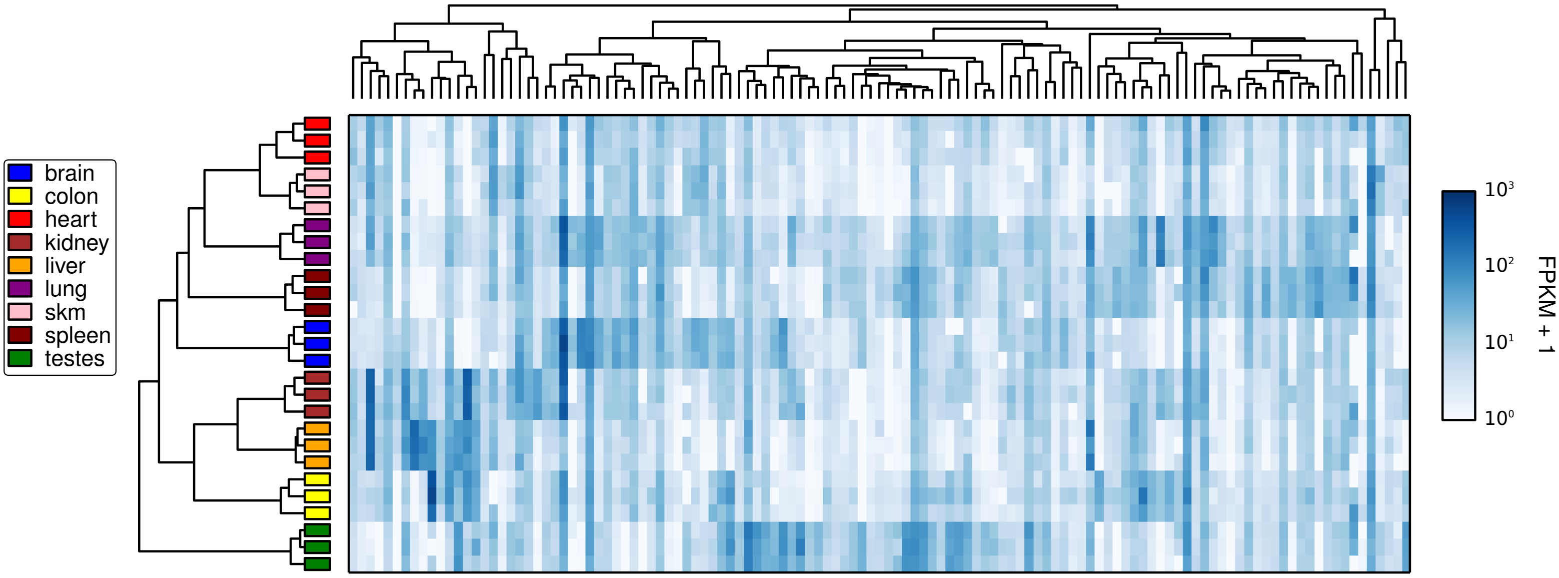
Figure s1



splicing age Mya	abbr	no. of exons
0-25	H-----	2073
25-90	HQ----	231
90-110	HQMR--	636
110-300	HQMRC-	4553
300+	HQMRCG	43613

Figure s2



brain
colon
heart
kidney
liver
lung
skm
spleen
testes
10^3
10^2
10^1
10^0
FPKM + 1

Figure s3

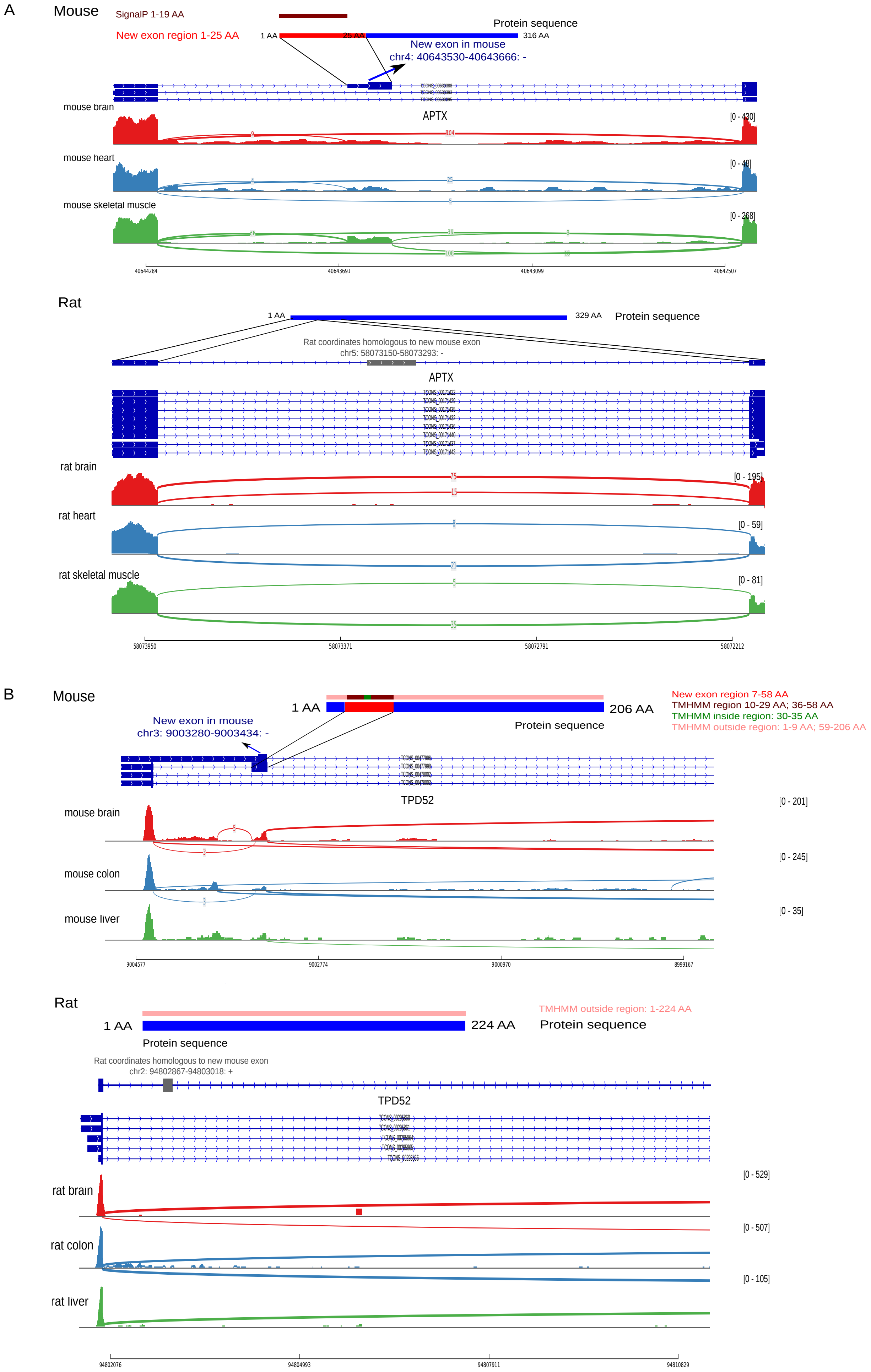
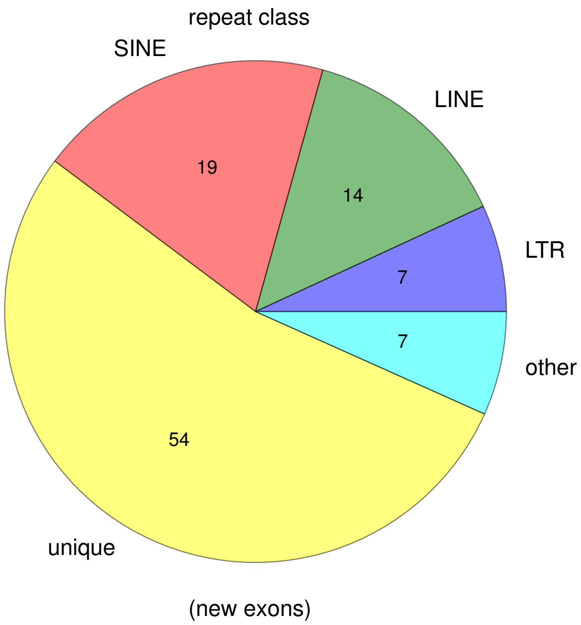

A
Mouse
SignalP 1-19 AA
New exon region 1-25 AA
1 AA
25 AA
316 AA
Protein sequence
New exon in mouse
chr4: 40643530-40643666: -
APTX
mouse brain
[0 - 430]
mouse heart
[0 - 48]
mouse skeletal muscle
[0 - 268]
40644284
40643691
40643099
40642507
Rat
1 AA
329 AA
Protein sequence
Rat coordinates homologous to new mouse exon
chr5: 58073150-58073293: -
APTX
rat brain
[0 - 195]
rat heart
[0 - 59]
rat skeletal muscle
[0 - 81]
58073950
58073371
58072791
58072212
B
Mouse
1 AA
206 AA
Protein sequence
New exon region 7-58 AA
TMHMM region 10-29 AA; 36-58 AA
TMHMM inside region: 30-35 AA
TMHMM outside region: 1-9 AA; 59-206 AA
New exon in mouse
chr3: 9003280-9003434: -
TPD52
mouse brain
[0 - 201]
mouse colon
[0 - 245]
mouse liver
[0 - 35]
9004577
9002774
9000970
8999167
Rat
TMHMM outside region: 1-224 AA
1 AA
224 AA
Protein sequence
Protein sequence
Rat coordinates homologous to new mouse exon
chr2: 94802867-94803018: +
TPD52
rat brain
[0 - 529]
rat colon
[0 - 507]
rat liver
[0 - 105]
94802076
94804993
94807911
94810829

Figure s4

A


repeat class
SINE
19
LINE
14
LTR
7
7
other
54
unique
(new exons)

B

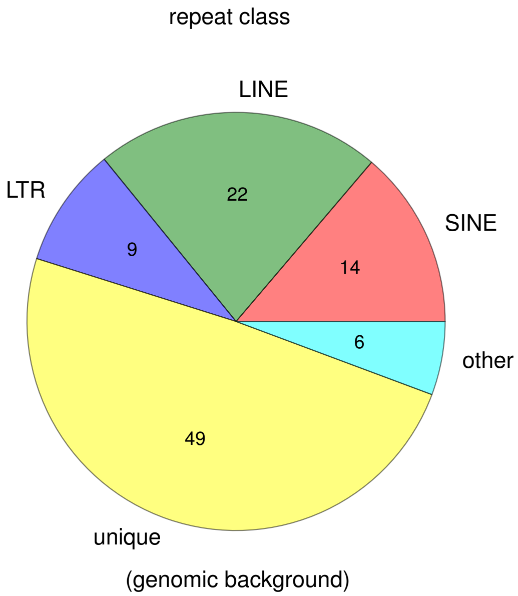
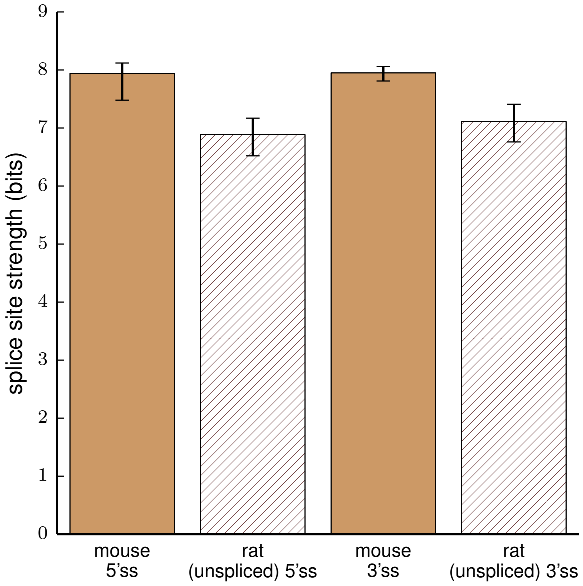

repeat class
LINE
22
LTR
9
SINE
14
6
other
49
unique
(genomic background)

Figure s5



splice site strength (bits)
0
1
2
3
4
5
6
7
8
9
mouse 5'ss
rat (unspliced) 5'ss
mouse 3'ss
rat (unspliced) 3'ss

Figure s6

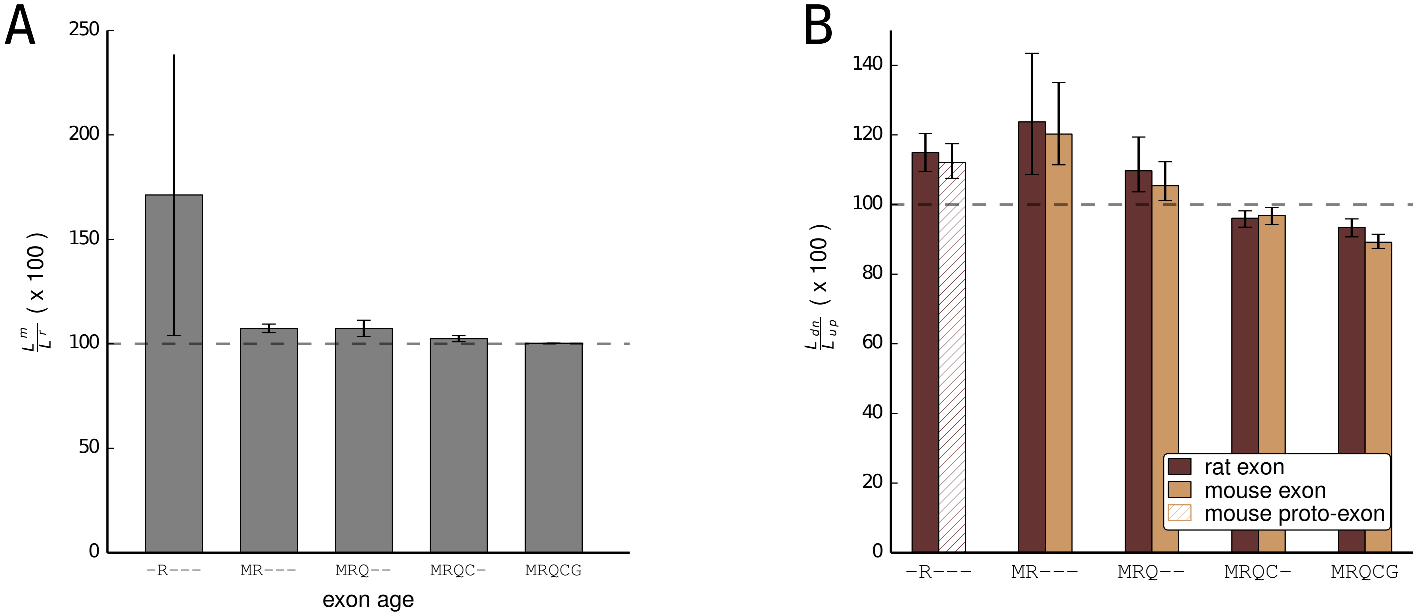

A
250
200
150
100
50
0
$\frac{L^m}{L^r}$ (x 100)
-R---
MR---
MRQ--
MRQC-
MRQCG
exon age
B
140
120
100
80
60
40
20
0
$\frac{L_{dn}}{L_{up}}$ (x 100)
rat exon
mouse exon
mouse proto-exon
-R---
MR---
MRQ--
MRQC-
MRQCG

Figure s7

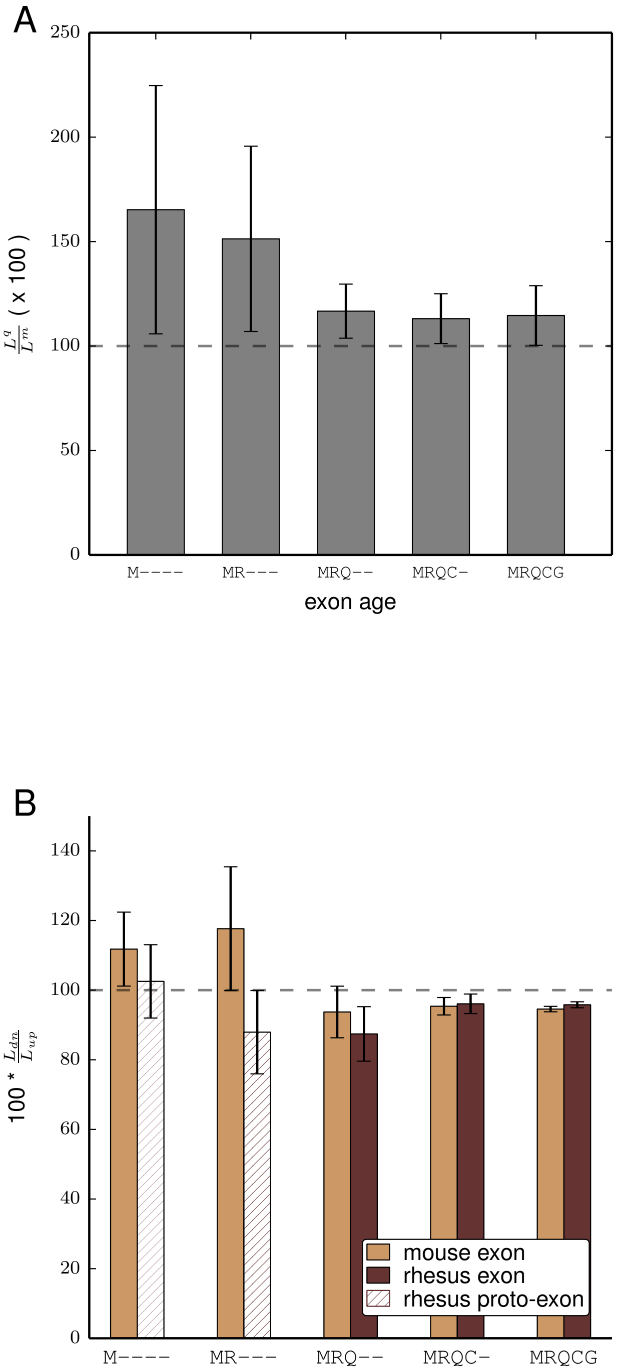

A
250
200
150
100
50
0
$\frac{L^q}{L^m}$ (x 100)
M----
MR---
MRQ--
MRQC-
MRQCG
exon age
B
140
120
100
80
60
40
20
0
100 * $\frac{L_{dn}}{L_{up}}$
mouse exon
rhesus exon
rhesus proto-exon
M----
MR---
MRQ--
MRQC-
MRQCG

Figure s8

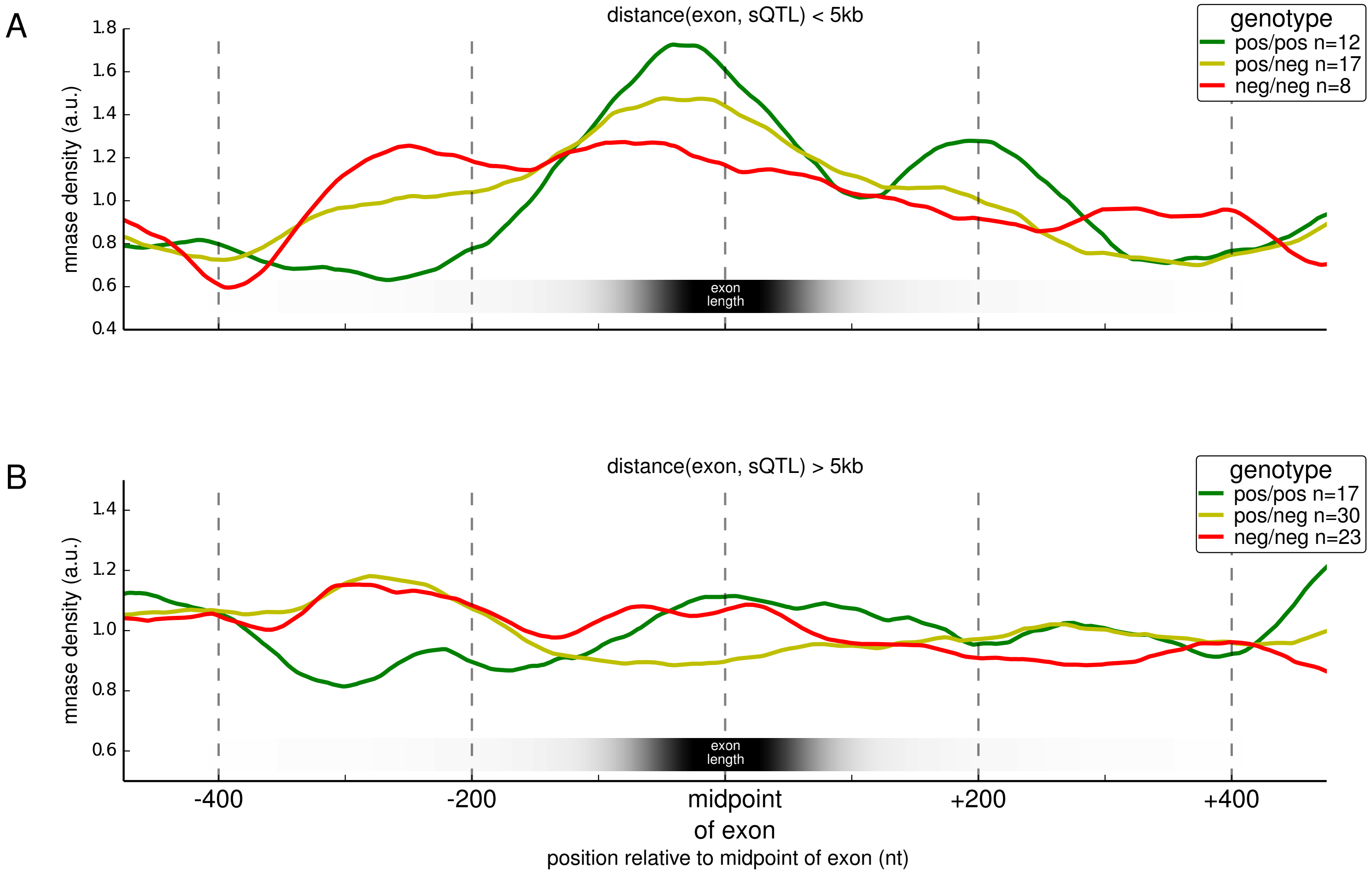
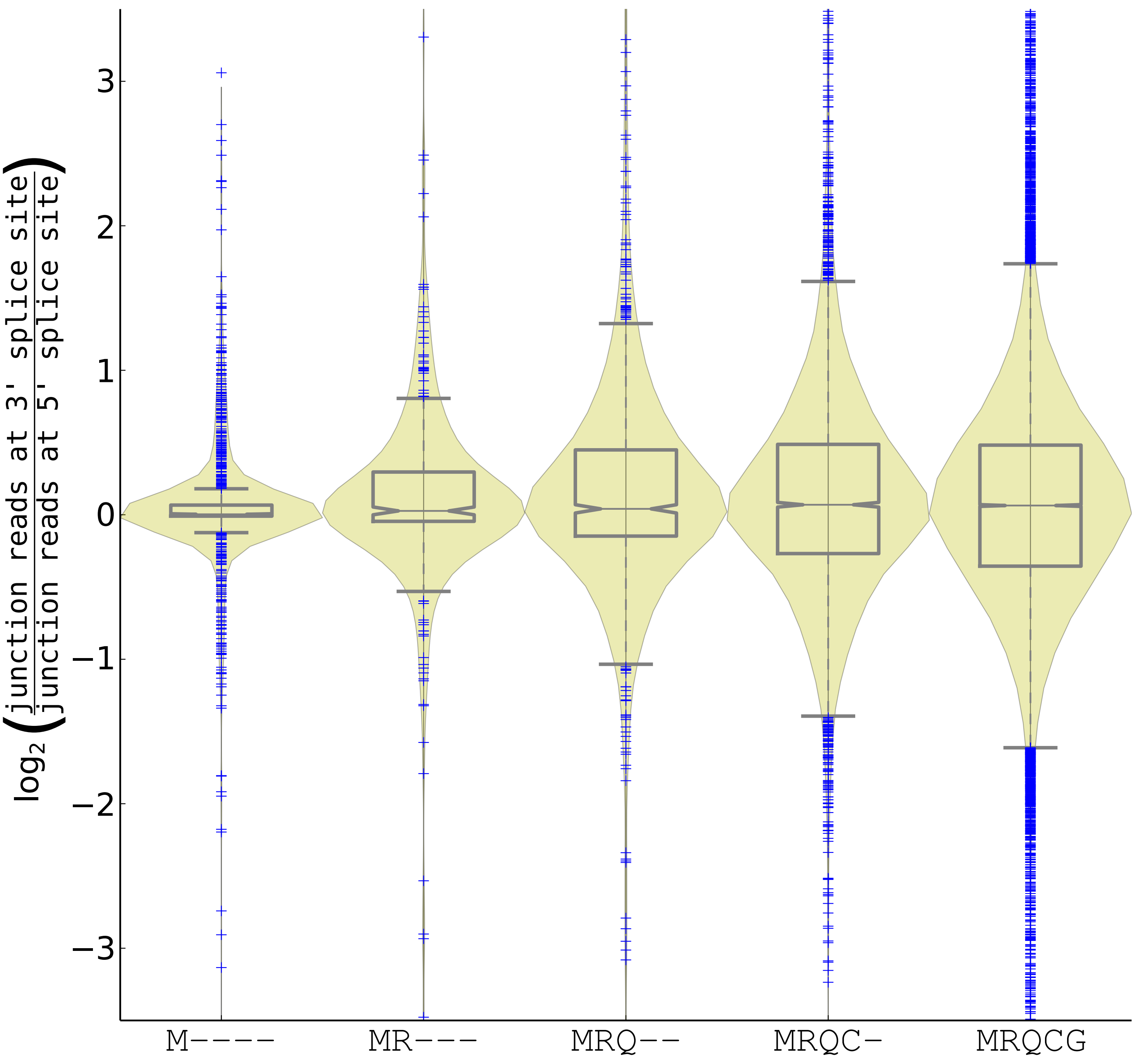
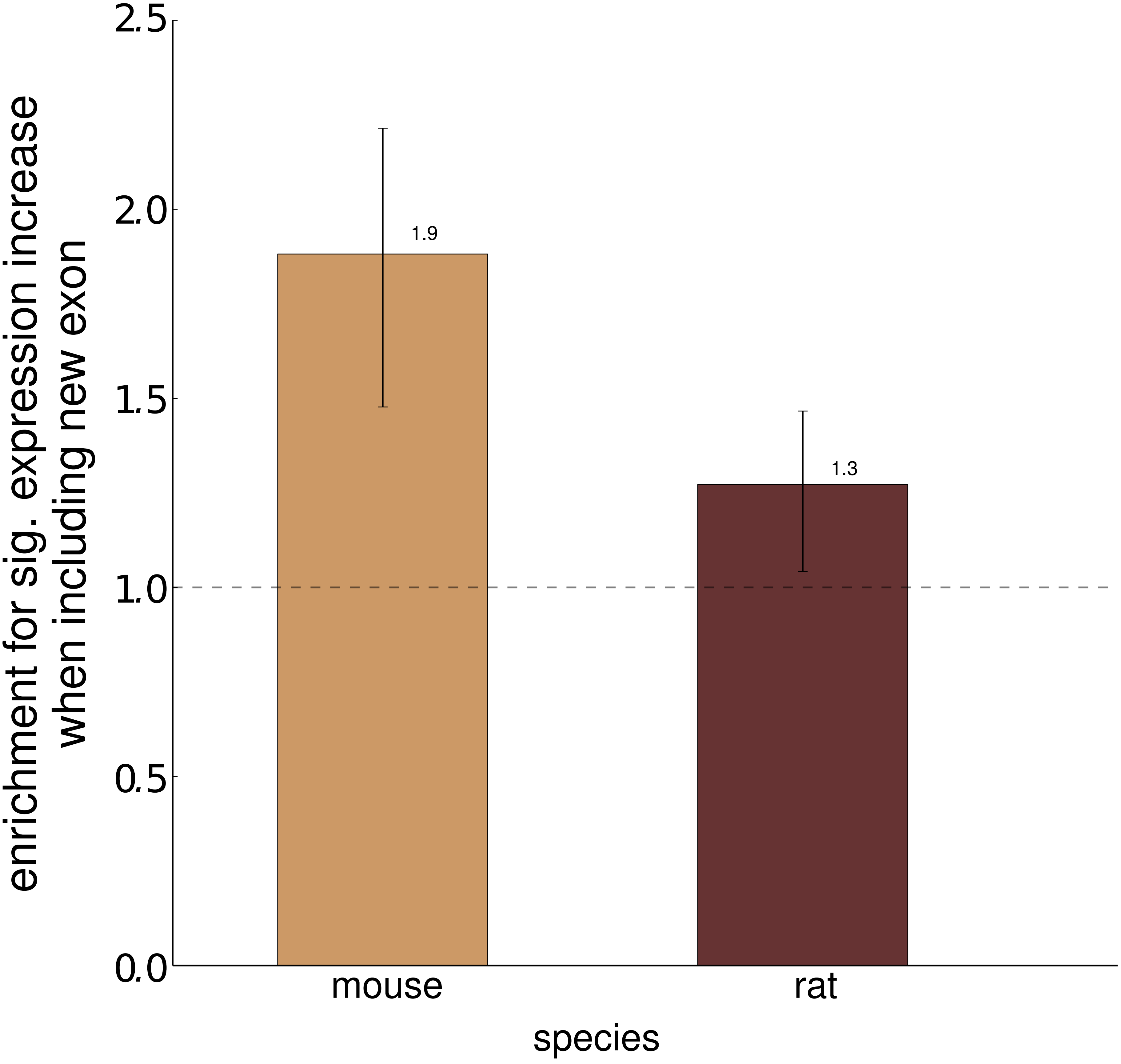

A
distance(exon, sQTL) < 5kb
mnase density (a.u.)
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
genotype
pos/pos n=12
pos/neg n=17
neg/neg n=8
exon
length
B
distance(exon, sQTL) > 5kb
mnase density (a.u.)
1.4
1.2
1.0
0.8
0.6
genotype
pos/pos n=17
pos/neg n=30
neg/neg n=23
exon
length
-400
-200
midpoint
of exon
+200
+400
position relative to midpoint of exon (nt)

Figure s9



$\log_2\left(\frac{\text{junction reads at 3' splice site}}{\text{junction reads at 5' splice site}}\right)$
3
2
1
0
−1
−2
−3
M----
MR---
MRQ--
MRQC-
MRQCG


enrichment for sig. expression increase
when including new exon
2.5
2.0
1.5
1.0
0.5
0.0
1.9
1.3
mouse
rat
species